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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG, QUAN ZHEN

ART UNIT

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2613

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.		Applicant(s)	
	10/713,449		AGAZZI, OSCAR E.	
	Examiner		Art Unit	
	Quan-Zhen Wang		2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-39 is/are pending in the application.
- 4a) Of the above claim(s) 28,32 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-27,29-31,34-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Species Applicant's election without traverse of Species II: figs. 4, 5, 11, and 13 (figs. 11 and 13 correspond to figs. 4 and 5, therefore, figs. 11 and 13 is included in Species II) in the reply filed on May 2, 2007 is acknowledged. Claims 26, 27, 29-31, and 34-39 are examined. Claims 28, 32, and 33 are withdraw as being directed to non-elected Species I.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the corresponding element of "time interleaving the converting of the held value" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

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consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 37 recites the limitation of "time interleaving the converting of the held values". However, the instant specification does not describe or disclose how to time interleave the converting of the held values. Therefore, claim 37 is not enabled.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 recites the limitation "the parallel process converting of the analog electrical signal" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 26, 31, 38, and 39 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Rowan et al. (U.S. Patent US 6,407,843 B1).

Regarding claim 26, Rowan discloses a method (figs. 1-6) of transmitting a first parallel data stream (fig. 1, data channels 110A-N) over a fiber optic channel (fig. 1, fiber 104), comprising: converting the first parallel data stream (fig. 3, data channels 110A-N) into a plurality of second parallel data streams (fig. 3, data streams output from encoder 302A-M); parallel process converting the plurality of second parallel data streams into a plurality of analog signals (fig. 3, data stream 210A-K); combining the

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plurality of analog signals into a single analog signal (figs. 2 and 5, data 212); converting the single analog into an optical signal (fig. 2, optical modulator 206); and coupling the optical signal to the fiber optic channel (fig. 2, fiber 104).

Regarding claim 31, Rowan discloses a method of converting an optical signal received from a fiber optic channel into a parallel data stream (figs. 7-10), comprising: converting the optical signal received from the fiber optic channel into an analog electrical signal (fig. 7, detector 700 and output data 710); converting the analog electrical signal into a plurality of baseband signals (figs. 7 and 8, signals 712A-K); and converting the plurality of baseband signals into a parallel data stream (figs. 7 and 8, data 120A-N).

Regarding claim 38, Rowan discloses a method (figs. 1-10) of transmitting and receiving a first parallel data stream over a fiber optic channel, comprising: converting the first parallel data stream (fig. 3, data channels 110A-N) into a plurality of second parallel data streams (fig. 3, data streams output from encoder 302A-M); parallel process converting the plurality of second parallel data streams into a plurality of analog signals (fig. 3, data stream 210A-K); combining the plurality of analog signals into a single analog signal (figs. 2 and 5, data 212); converting the single analog signal into an optical signal (fig. 2, optical modulator 206); coupling the optical signal onto the fiber optic channel (fig. 2, fiber 104); converting the optical signal received from the fiber optic channel into an analog electrical signal (fig. 7, detector 700 and output data 710); parallel process converting the analog electrical signal into a third plurality of parallel

digital signals (fig. 9B, data 712A-H); and converting the third plurality of parallel digital signals into a fourth parallel data stream (fig. 10, data 120A-N).

Regarding claim 39, Rowan discloses a method (fig. 7-11) of converting an optical signal received from a fiber optic channel comprising: converting the optical signal received from a fiber optic channel into an analog electrical signal (fig. 7, detector 700 and output data 710); providing the analog electrical signal to a plurality of A/D converters (fig. 9B, A/D converter 918A-H); and converting the analog electrical signal to a plurality of digital signals (fig. 10, data 120A-N).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 27, 30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan et al. (U.S. Patent US 6,407,843 B1) in view of Chow (U.S. Patent US 6,249,543 B1).

Regarding claims 27, 30, and 34, Rowan has been discussed above in regard with claim 26. Rowan differs from the claimed invention in that Rowan does not specifically disclose that the signal process comprises encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and

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converting the transformed values into analog representations in a plurality of digital to analog converters. However, these steps are well known in the art in processing data to be transmitted in a multi-carrier communication system. For example, Chow discloses to process data to be transmitted including the steps of encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters (figs. 1 and 3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the data processing steps as disclosed by Chow in the system of Rowan in order to effectively convert data in frequency domain into time domain signals which can be transmitted over a communication channel.

11. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan et al. (U.S. Patent US 6,407,843 B1) in view of Muller et al. (U.S. Patent US 6,873,630 B1).

Regarding claim 29, Rowan has been discussed above in regard with claim 26. Rowan differs from the claimed invention in that Rowan does not specifically disclose converting data using XGMII. However, XGMII is a well-known data coupling interface. For example, Muller discloses to use XGMII to couple different layers in a data communication network (fig. 1, 10GMII 102). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a

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10GMII, as it is disclosed by Muller, in the system of Rowan to convert the first parallel data stream into a second parallel data stream in order to effectively process data with high data rate.

12. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan et al. (U.S. Patent US 6,407,843 B1) in view of Brede et al. (U.S. Patent Application Publication US 2002/0098797 A1).

Regarding claims 35, and claim 36, as it is understood in view of the above 112 problem, Rowan has been discussed above in regard with claim 31. Rowan differs from the claimed invention in that Rowan does not specifically disclose sampling and holding successive values of the analog electrical signal; providing the held analog value to a plurality of A/D converter. However, in the data processing of a multi-carrier communication system, it is well known in the art to sample and hold successive values of an analog electrical signal; and provide the held analog value to a plurality of A/D converter. For example, Brede discloses sampling and holding successive values of the analog electrical signal; providing the held analog value to a plurality of A/D converter (figs. 33 and 34, paragraphs 0296 and 0302). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the data processing method of Brede in the system of Rowan in order to generate data points that are suitable to be applied to a FFT utilized in the receiver architecture (paragraph 0296).


Regarding claim 37, Rowan further discloses to interleave and de-interleave data strings (column 6, lines 17-29; column 10, lines 36-47).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

qzw
6/10/2007


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